

REPORT ON THE IMPLEMENTATION OF THE US-USSR
AGREEMENT ON COOPERATION IN THE FIELD OF
ENVIRONMENTAL PROTECTION
DURING THE PERIOD DECEMBER 1973 TO DECEMBER 1974

Adopted by the Third Annual Meeting of the
US-USSR Joint Committee on Cooperation in the
Field of Environmental Protection
(Moscow, USSR, December 9-12, 1974)

INTRODUCTION

In accordance with the authority and procedures set forth in the May 1972 US-USSR Agreement on Cooperation in the Field of Environmental Protection, the Third Annual Meeting of the Joint Committee which took place in Moscow, USSR, December 9-12, 1974 reviewed the implementation of the Agreement during the period December 1973-December 1974.

Environmental cooperation during the review period took place in accordance with the programs contained in the Memorandum of the Second Meeting of the Joint Committee signed in Washington, D. C. November 16, 1973. Some 38 projects were active within 11 major areas of cooperation under the terms of the Agreement. The concrete results of this cooperative effort during the review period are set forth below.

AREA I -- PREVENTION OF AIR POLLUTION

1. Air Pollution Modeling, Instrumentation and Measurement Methodology

Project I-1 Air Pollution Modeling

During the second meeting of the working group held in Leningrad in June-July 1974 methodological questions of air pollution modeling were discussed. Comparisons of US and Soviet methods of evaluating air pollution from point sources as well as of data modeling and of US field observations were initiated. Possibilities and methods of air pollution prediction, the necessity for aerosol research in support of modeling, and to a certain extent the hygiene aspects of standardization of air pollution were also discussed. Both sides obtained valuable information on new work undertaken in each country including numerical simulation. The US side provided information on wind tunnel modeling of air pollution.

A meeting of experts scheduled for November 1974 was postponed until January 1975.

The project leaders were Dr. H. L. Wiser, Deputy Assistant Administrator for Environmental Sciences, EPA (USA) and Prof. M. E. Berlyand, Chief, Atmospheric Pollution Section, Voikov Main Geophysical Observatory, Leningrad (USSR).

Project I-2 Instrumentation and Measurement Methodology

During the June-July 1974 working group meeting in Leningrad,

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essential results were obtained from comparative laboratory tests of automatic gas analyzers used in the USA and USSR for measuring sulfur dioxide and carbon monoxide. The basic technical characteristics of instruments were compared and their effectiveness was evaluated. These tests showed that the US and Soviet instruments which were examined provide comparable data, that the calibration equipment gives coincident values, and that interference of most important impurities is insignificant.

The project leaders were Dr. Wiser (USA) and Prof. M. E. BERLYAND ✓
Chief of Atmospheric Section Laboratory, Voeikov Main Geophysical Observatory, Leningrad (USSR).

The Working Group Co-Chairmen were Dr. Wiser (USA) and Prof. Berlyand (USSR).

2. Stationary Source Air Pollution Control Technology *

The working group met in the USA April 13-26, 1974 and approved a program which provided the basis for preparation of work plans for two projects. The working group agreed upon a procedure for coordinating the activities of various topics and industry-oriented task forces in the framework of these projects. Because of the close relationship between projects within the US-USSR Environmental and Energy Agreements, a procedure for cooperation between respective US working groups (Harrington and Falkenberry) and Soviet working groups (Anikeyev and Trubitsyn) was developed.

The Working Group Co-Chairmen were R. E. Harrington, Director, Air Pollution Technology Division, EPA (USA) and V. A. Anikeyev, Chief Engineer, Ministry of Chemical and Petroleum Machine Building (USSR).

Project I-3 Development of Methods and Equipment for Control of Emissions from Industrial Sources

In August 1974 Soviet specialists visited US facilities and participated in a conference on the design of full-scale sulfur oxide control systems. In November 1974 US experts visited the USSR to continue discussions on the design of full-scale facilities to be constructed in the USSR. Three methods of desulfurization of electric power plant stack gases were discussed:

(a) Lime/Limestone Scrubbing for Stack Gas Desulfurization

Continued exchange of information between the USA and USSR was agreed upon including the supply of performance data from the US Shawnee

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POLLUTION CONTROL DIVISION, EPA

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COMBINE, MINISTRY OF CHEMICAL & PETROLEUM
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plant and reports covering Soviet installations including the Magnitogorsk plant.

Topic leaders: M. A. Maxwell (USA) and V. A. Anikeyev (USSR).

(b) Development of Magnesium Scrubbing for Stack Gas Desulfurization

Under this topic US experts including members of private industry began participating in discussions on the design of an industrial scale Soviet desulfurization installation which will scrub approximately one million normal cubic meters of stack gases per hour from an oil fired power plant. It was agreed that US specialists will participate in the start-up and collection of performance data from this installation. In August and November 1974 meetings of US and Soviet experts were held for purposes of developing and critiquing its design.

Topic leaders: M. A. Maxwell (USA) and V. I. Lazerev (USSR).

(c) Development of Ammonia Scrubbing for Stack Gas Desulfurization

Based on mutual interests and expertise in the USA and USSR implementation began in this topic under which US experts began to participate in the design of a full-scale ammonia scrubbing facility in the USSR. It was agreed that in addition to providing consultation for the design of this project, US experts will participate in the start-up and in the collection of performance data.

Topic leaders: M. A. Maxwell (USA) and V. I. Lazerev (USSR).

In January 1974 US and Soviet experts participated in a symposium in the USA on the control of fine particulate emissions. This symposium, the second meeting of the Working Group in April 1974, and an October 1974 project implementation meeting in the USSR facilitated rapid development of three topics:

(i) Development of Methodology and Establishment of Efficiency of Industrial Dust Collection Equipment for Fine Particulates

Work began on jointly assessing high efficiency wet scrubbers installed in both countries to collect harmful emissions from metallurgical processes, and modern electrostatic precipitators being used to collect fly ash from power generation. Special attention is being given to their effectiveness in collecting fine particulates under 2-3 microns in diameter. The equipment being tested is representative of the best technology available in the USA and USSR.

Topic leaders: A. B. Craig (USA) and G. K. Lebedyuk (USSR).

(ii) Study of Electrostatic Precipitators

Work began on the joint development of a performance model for electrostatic precipitators. When completed, the work will improve the ability to design reliable precipitators for control of power plant fly ash emissions. The model development work was begun independently in the USA but the Soviet side by virtue of its past experience is in a position to generate performance data which is needed for further refinement. The Soviet side has agreed to do experimental work during the first half of 1975 which is expected to yield information for development of a final version of the model which will be available for use in both countries after completion.

Topic leaders: A. B. Craig (USA) and G. K. Lebedyuk and V. A. Anikeev (USSR).

(iii) Methodology for Determining Physical and Chemical Properties of Aerosols

Work began on developing common methods for field testing of full-scale dust collection equipment in the USA and USSR. Special attention was devoted to sampling and analytical methods needed for a fairly sophisticated test program. It was concluded that the newest methods for sampling and analysis are to be used for detailed examination of two full-scale plants in each country. It is expected that this project will yield better understanding of control equipment and will result in further refinement of analytical skills.

Topic leaders: A. B. Craig (USA) and G. K. Lebedyuk (USSR).

Project I-4 Prevention of Air Pollution by Means of Improving Processes, Including Development of Methods of Fuel Preparation

Demetalization Pretreatment for Hydrosulfurization of Heavy Residual Oils to Produce Low Sulfur, Low Ash Fuel Oils

Discussion during the April 1974 Working Group meeting in the USA and meetings in the USSR in October and December 1974 produced agreement on comparing methods and sharing results obtained from past work in the USA and USSR on processes for removing metals from residual fuel oils. These processes directly reduce the environmental impact associated with combustion of residual oils and also facilitate further processing to remove sulfur compounds.

-5-

A number of recommended new clean fuel topics were identified including studies of new power cycles and development of improved fuel gas cleaning systems.

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Topics leaders: ^{JAMES, T.K.} W. J. Rhodes (USA) and ^{MARLENHIKOV, V.M.} Yu. K. Vail (USSR).

^{FUEL PROCESS SECTION} ^{V LAR CHIEF OF INT, USSR ACADEMY}
^{EPA} ^{OF SCIENCES}

As a follow up to meetings between US specialists and representatives of the USSR Ministry of Ferrous Metallurgy in April and November 1974, a program was developed in which a US iron and steel industry team will conduct extended on-site evaluation of the Soviet-developed process of non-polluting dry quenching of coke to determine industry interest in acquiring the process for US application. Exchanges of information preliminary to the development of additional spheres of cooperation on air pollution control in the iron and steel industry were initiated.

3. Transportation Source Air Pollution Control Technology

Project I-5 Transportation Source Air Pollution Control Technology

In April 1974 a Soviet delegation headed by Dr. Y. B. Sviridov, Director, Central Scientific Research and Design Institute of Fuel Systems, Ministry of Tractor and Agricultural Machine Building, visited the EPA Mobile Sources Pollution Control Laboratory, Ann Arbor; the Chrysler Motor Vehicle Proving Grounds, Chelsea; the Ford Automobile Assembly Plant, Dearborn; the General Motors Research Center, Warren; the University of Michigan Automotive Research Laboratory; the State of California Clean Car Program, Sacramento; the California Air Resources Board Emissions Control Laboratory, El Monte; and the California Transportation Planning Program, Los Angeles.

During this visit the Soviet side gave presentations on: the status of the USSR emissions control program; the stratified charge of rotary engines; fuel film evaporation as a means of gas turbine induction; prechamber combustion engines; smoke emissions from diesel engines; optimization of diesel fuel composition; and the selection of promising methodology for measurement of vehicle emissions.

The US side gave presentations on: the status of the US Federal regulator program on vehicle emissions; the US industry program for meeting Federal emissions standards; organization of EPA's mobile sources pollution control program; EPA activities in technology assessment and emissions characterization; the Federal certification program; EPA's advanced alternative power systems development program; emissions measurement technology; emissions control techniques currently available for production of gasoline engines; the effect of ambient conditions on emissions; emissions from gaseous fuel.

-6-

turbine engine development; Rankine cycle engine development; and EPA's fuel economy measurement program.

Both sides recognized the need for expanded and accelerated activities in (1) joint development of engine toxicity measurement methodology; (2) development and demonstration of control technology for existing types of power systems; (3) development of alternative methods of toxicity reduction including stratified charge engines, rotary engines, advanced alternative power systems, and alternative or modified fuels; and (4) reduction of toxicity from other transportation sources including aircraft, motorcycle, and marine engines.

In December 1974 a meeting of US and Soviet technical experts was held in Moscow during which proposals for further cooperation were agreed upon.

The project leaders were E. O. Stork, Deputy Assistant Administrator for Mobile Source Air Pollution Control, EPA, who replaced Dr. K. H. Jones (USA) and Dr. Yu. N. Drozdov, Chief, Research Laboratory on Engine Toxicity, who succeeded Dr. Pomin (USSR). Do I

AREA II -- PREVENTION OF WATER POLLUTION

The second session of the Working Group was held September 16-18, 1974, in Chicago. After discussing the results achieved since its first meeting in March 1973, the Working Group approved work programs for (1) studies and modeling of river basin pollution; (2) protection and management of water quality of lakes and estuaries; and (3) effects of pollutants and permissible levels of pollution in aquatic ecological systems. The Working Group also agreed upon tentative terms and programs of reciprocal visits in 1974-1976. Following the Working Group meeting the Soviet delegation visited EPA research centers, laboratories, and facilities in Chicago; Corvallis, Oregon; Seattle, Washington; Lake Tahoe, California; San Francisco, and Washington, D. C.; the group also visited Expo '74 in Spokane.

Both sides agreed that beginning in 1976 the Studies and Modeling of River Basin Pollution project would be given new scope under the title "River Basin Water Quality Planning and Management."

The Working Group Co-Chairmen were Dr. J. Buckley, Deputy Assistant Administrator, Office of Research and Development, EPA (USA) and B. G. Shtepa, Deputy Minister, Ministry for Reclamation and Water Management (USSR). Do I

-7-

Project II-1 Studies and Modeling of River Basin Pollution

Cooperative measures for improving water quality planning were developed, taking into account the technological advances and legal requirements of each country. Subsequently, a preliminary plan was developed for constructing a river basin pollution abatement program which includes analytical methods for analyzing current water quality, forecasting effluent discharges, and optimizing water quality control plans and their economic impact. On the basis of scientific and technical information provided by the US side, in September 1974 the Soviet side provided an English-Russian glossary of terminology in the field of water conservation.

The project leaders were M. Pisano, Director Water Planning Division, Office of Air and Water Programs, EPA (USA) and Dr. V. R. Lozanskiy, Director, All-Union Scientific Research Institute on Water Protection, Ministry for Reclamation and Water Management (USSR). *DOI*

Project II-2 Protection and Management of Water Quality of Lakes and Estuaries

A Soviet delegation headed by Dr. N. K. Gasilina, Head of the Department of Investigation and Monitoring of Environmental Pollution, Main Administration of the Hydrometeorological Service, visited the USA September 1-15, 1974. During the first week of a meeting held at the EPA Grosse Ile Laboratory, US scientists presented reports with associated demonstrations of equipment and techniques on: in situ monitors for basic environmental parameters; sediment oxygen demand studies; algal assay and modeling techniques; methodology for analysis of chemical parameters in lake water; data handling procedures using EPA computer systems; near shore hydraulic transport models for Lake Erie; transport models for Saginaw Bay; technology for development of a heat budget for Lake Ontario; the circulation of large lakes, particularly Lake Michigan; the research program of the Bureau of Sport Fisheries and Wildlife for the Great Lakes; the nutrient-eutrophication research conducted on the Great Lakes; simulation of algal productivity in Lake Michigan; EPA management and enforcement work on the Great Lakes; research on waste treatment technology; analytical quality control and biological and chemical analysis method development; research on criteria and standards development for drinking water in the USA; and predictive simulation development for eutrophication of the Great Lakes.

The Soviet delegation reviewed Soviet progress and technology in the areas under discussion. A considerable exchange of literature on these subjects was made by the experts of the two delegations and future exchanges of scientific literature were agreed on. A technical field trip to Saginaw

Bay was organized to demonstrate the US methods for collection of information in the field. The Soviet specialists familiarized themselves with the system and organization of collection and use of biological and chemical data from the Great Lakes. Discussions and interchange of concepts, approaches, and conclusions covered a wide range.

It was agreed that further exchange of information and an expansion of joint research is essential. This will include continued intercomparisons of existing analytical methods initiated in 1973 by the analysis of a water sample collected from Lake Baikal by US and Soviet scientists, and expanded intercomparison in 1975 of water, as well as the chemistry of sediments based on samples collected from Lake Baikal and the Great Lakes.

Both sides agreed to review the respective standard methodologies for the collection of hydrologic, chemical, and biologic data and to exchange standard literature and reviews. The Soviet side agreed to examine the possibility of publishing translations of the EPA Standard Methods for Chemical and Biological Analysis as a document of the Working Group on Prevention of Water Pollution.

It was also agreed to interrelate activity in both countries in the development of mathematical models aimed toward the assessment and management of man's activity in agricultural, municipal, and industrial uses of the water affecting large lakes. It was decided that in association with a larger symposium sponsored by the Working Group on Prevention of Water Pollution to be held in the USSR in 1975, a special group will assess the current status of large lake models and develop a plan for future collaborative work between the two countries to accelerate the development of the models and implement their use.

The project leaders were Dr. T. T. Davies, Director of EPA's Grosse Ile Laboratory and EPA's Large Lake Research Program (USA) and Dr. A. A. Zenin, Director, Hydrochemical Institute of the Main Administration of the Hydrometeorological Service (USSR). *Do I*

Project II-3 Effects of Pollutants on Aquatic Ecosystems and
Allowable Levels of Pollution ✓

During the past year the US side sent the Soviet side abstracts of 1972 and 1973 literature on the effects of various substances on aquatic life. This was done in preparation for a symposium on Methods of Establishing Maximum Pollutant Concentrations for various substances in lakes and rivers which was planned to be held in the USA in October 1974 but was postponed until early 1975.

-9-

The project leaders were Dr. D. Mount, Director, EPA Water Quality Laboratory, Duluth (USA) and Prof. N. V. Butorin, Institute of Biology of Inland Waters, USSR Academy of Sciences, who succeeded Prof. Winberg (USSR).
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Project II-4 Prevention of Water Pollution from Industrial and Municipal Sources

A US delegation visited the USSR December 1-22, 1973. The delegation visited eight plants including an oil refinery, rayon plant, paper mill, chemical complex, sausage plant, and a municipal treatment works. The group also visited five design institutes.

At a meeting held in Chicago September 16-20, 1974, and in accordance with the November 16, 1973, Memorandum of the Second Meeting of the Joint Committee, this subgroup of the Water Pollution Working Group was restructured as a separate Working Group. A program was agreed upon for cooperation in the following fields: recycling and reuse of waste water; reduction of waste discharge and pollution resulting from technological process changes; modernization of treatment facilities; development of more efficient and effective waste treatment methods; and improvement of waste water treatment systems for pulp and paper, chemical, petroleum refining, petrochemical, and metallurgical plants, as well as municipal systems management.

Under the new Working Group, A Soviet delegation headed by R. F. Slavolyubov, Head of Science Programs, GOSSTROI, visited various waste water treatment and recycling facilities of municipal and industrial plants (including steel and petroleum refineries) in New York, Seattle, Lake Tahoe, Los Angeles, Denver, Milwaukee, Baton Rouge, and Birmingham in October 1974.

In May 1974 a Soviet pulp and paper industry delegation led by A. M. Pristupa, Chief Engineer, Main Administration of the Ministry of Pulp and Paper Industry, visited the USA. The Soviet team visited seven pulp and paper mills, a consulting engineering firm specializing in waste water treatment design, and the North Carolina State University Department of Wood and Paper Science.

In September a Soviet chemical industry delegation led by K. K. Cherednichenko, Deputy Minister of the Chemical Industry of the USSR, visited the USA. The group visited five chemical industry plants, the North River Waste Treatment Plant, and the Spokane Expo '74. The delegation also visited EPA headquarters, Washington, D. C. to familiarize

itself with the direction and guidelines which EPA furnishes US chemical industries.

The project leaders were H. P. Cahill, Director Municipal Construction Division, EPA (USA) and S. V. Yakovlev, Director, VODGEO, GOSSTROI (USSR).

The Working Group Co-Chairmen were H. P. Cahill (USA) and B. G. Shtepa, Deputy Minister for Reclamation and Water Management (USSR).

AREA III -- PREVENTION OF ENVIRONMENTAL POLLUTION CONNECTED WITH AGRICULTURAL PRODUCTION

DOI 2814/75
U.S. Chairman: DR. C.I. HARRIS

Project III-1 Integrated Pest Management

USSR CORRESPONDENT
DR. I. A. CHURAYEV

During 1974 specialists from both countries familiarized themselves with the use of hormones and pheromones in integrated pest management. Two Soviet specialists visited the USA to study this question in April 1974. Three US teams totalling 9 specialists visited the USSR June-September, 1974, to study means of minimizing crop losses due to pests with minimum effect on the environment. Each team spent approximately 30 days visiting a wide variety of pest management and research facilities. The team leaders were Dr. W. Arthur (CIBA-GEIGY Corporation - Integrated Pest Management), Dr. C. Huffaker (University of California, Berkeley - Biological Control and Use of Pesticides) and Dr. C. Ignoffo (USDA Agricultural Research Service - Use of Microbiological Agents for Insect Control and Mass Rearing of Insect Predators).

In October, 1974 an 8-member Soviet delegation led by Academician Yu. N. Fadeyev, Chief, Plant Protection Division, All-Union Academy of Agricultural Sciences, participated in a Joint US-USSR Symposium on Forecasting of Pest Populations held at Michigan State University. Following the symposium the Soviet delegation visited pest management facilities at Purdue University; the U.S. Department of Agriculture Center, Beltsville, Maryland; and facilities at College Station and Brownsville, Texas; where they discussed problems of mutual interest with US scientists. During the visit plans were made for exchanges of scientists, an agroecosystems workshop, exchanges of biological and chemical materials, and the establishment of cooperative research trials.

The project leaders were Dr. B. G. Tweedy, CIBA-GEIGY Corporation (USA) and Dr. I. A. Churayev, Head, Plant Protection Division, Ministry of Agriculture (USSR).

-11-

Project III-2 Interreaction Between Forests, Plants and Pollutants

In 1974 the possibility of cooperation in this field was discussed. No definite measures were taken. Dr. R. G. Krebill, Forest Service, U.S. Department of Agriculture was appointed as US leader of this new project.

USSR SIDE : MOLCHANOV, ALEXKSANDER ALEXSEYEVICH
DO1 (3/6/75) DIRECTOR, FORESTRY LABORATORY, USSR
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Project III-3 Effects of Chemicals used in Agriculture on Fauna

Dr. L. D. Voronova, Chief, Department of Pesticides, Central Laboratory for the Protection of Nature, Ministry of Agriculture, was included in the Soviet team on the Protection of Ecosystems in Northern Regions (Area V) which visited the USA September 8-22, 1974. Dr. Voronova visited the Patuxent Wildlife Research Center and other research centers.

A pesticide specialist, Dr. H. Ohlendorf, was included in the October 6-21, 1974 visit to the USSR of a team under Area V of the Agreement.

Late in 1974 Dr. L. Stickel, Director, Patuxent Wildlife Research Center, Department of the Interior, Laurel, Maryland and Dr. L. D. Voronova were selected as US and Soviet leaders of this new project.

Project III-4 Forms and Mechanisms by which Pesticides and Chemicals are Transported

Two Soviet specialists visited US research centers at Beltsville, Maryland as well as Athens and Watkinsville, Georgia, November 24-December 4, 1974. Joint discussions of research areas of mutual interest were held and a program for future cooperation was adopted.

The project leaders were Dr. D. W. Duttweiler, Director, EPA Southern Environmental Research Laboratory (USA) and Dr. S. G. Malakhov, Institute of Experimental Meteorology (USSR).

Overall guidance for Area III on the US side was provided by Dr. C. I. Harris, U.S. Department of Agriculture, who succeeded Dr. F. Tschirley.

AREA IV -- ENHANCEMENT OF THE URBAN ENVIRONMENT

The second meeting of the Working Group was held in the USSR November 18-December 1, 1973. Following three days of discussions in

Moscow, the US delegation visited Leningrad, Togliatti, Tashkent, and Samarkand.

The third meeting of the Working Group took place in the USA November 8-22, 1974. Discussions on 1974 activities and the planning of the 1975 program took place in Washington November 11-14, 1974, followed by site visits in Charlottesville, Virginia; Boston; and New York. The two sides agreed on a series of eight fields in which joint work will be undertaken in 1975, including a joint document correlating individual and mass transit systems, site selection criteria for new communities, technology and research in solid waste management practices, and public policy toward historic preservation.

The Working Group Co-Chairmen were M. H. Moskow, Assistant Secretary for Policy Development and Research, Department of Housing and Urban Development (USA) and A. O. Kudryavtsev, Chief, Department of Urban Planning, State Committee for Civil Construction and Architecture.

Within the framework of Area IV, there was cooperation in the following fields:

Project IV-1 Environment in New Communities

A US team of new communities experts visited the USSR in July 1974 and toured Moscow, Leningrad, Togliatti, Sochi, and Minsk. The team discussed problems of new town planning with Soviet experts and exchanged information on methods of site selection, optimization of financial resources, and scientific methods for planning. The Soviet side supplied the visiting US specialists a summary concerned with planning and building of new cities in the USSR.

The visit of a Soviet team to the USA under this project, which had been planned for the fall of 1974, was postponed until early 1975.

In accordance with the US-USSR Agreement on Cooperation in the Field of Housing and Other Construction, work on construction design criteria and construction technology of new towns will in the future be carried out within the framework of that Agreement.

Project IV-2 Improvement of Environment with Regard to Places of Historic Monuments

A US team of historic preservation experts visited the USSR in May-June 1974 and toured Moscow, Vladimir, Suzdal, Leningrad, Yerevan, and

-13-

Tbilisi. The team exchanged documents on the policy, procedures, techniques and history of historic preservation efforts in each country and many meetings were held with preservation officials in each city visited.

Project IV-3 Removal and Disposal of Solid Wastes in Urban Areas

In October a Soviet solid waste team visited Washington, D. C.; Menlo Park, San Francisco and Los Angeles, California; Scottsdale, Arizona; Chicago; and Madison, Wisconsin. Considerable information exchange resulted on waste reduction, landfill, treatment of wastes, and related subjects.

USSR CORRESP: PROKHOROV, A.N., Dep Director, Academy of Communal Economy

Project IV-4 Enhancement of Environment in Existing Cities (Urban Transportation)

During the third meeting of the Working Group a joint project was outlined and dates were set for discussing questions related to implementing rational intermodal transportation. A visit of Soviet transportation experts in November was postponed at the request of the Soviet side. Both sides exchanged information by correspondence.

Since the above mentioned projects were not fully formed during 1974, project leaders were not designated by the Soviet side. The US side designated the following project leaders: O. Stolz, Administrator, New Communities Administration, HUD (Project IV-1), E. Connally, Associate Director, National Park Service (Project IV-2), V. Grey, Senior Staff Officer, Office of Solid Waste Management, EPA (Project IV-3), and M. Convisser, Director, Office of Environmental Affairs, Department of Transportation (Project IV-4).

Apart from the above mentioned projects, there was also discussion and exchange of information on the subjects of the Far North, noise abatement, land use standards, recreation zones, and landfills. The subject of housing management and modernization was inactive since it is to be carried out within the framework of the US-USSR Agreement on Cooperation in the Field of Housing and other Construction.

AREA V -- PROTECTION OF NATURE AND THE ORGANIZATION OF PRESERVES

The comprehensive work program initiated under this area was carried out under the following projects:

-14-

Project V-1 Protection of Rare and Endangered Species of Plants and Animals and Non-Exploited Animals

In October a US delegation visited the Voronezh, Caucasus, Teberda, and Lake Ritsa State Preserves, the Moscow Main Botanical Gardens, the Dendrarium at Sochi, and other areas. In November Soviet delegates visited Everglades National Park, Biscayne National Monument, Loxahatchee National Wildlife Refuge, Patuxent Wildlife Research Center, Blackwater National Wildlife Refuge, and other areas. During these reciprocal visits both sides became acquainted with each other's protection of rare species of flora and fauna and management of wildlife populations.

During discussions, the US side expressed the desire to conclude a convention for the conservation of migratory birds and their habitat as well as of endangered species of wild flora and fauna and their environments. (The US side expressed continuing interest in including provisions for the conservation of unique natural ecosystems, but indicated a willingness to defer consideration of that concept in order to expedite agreements on the other two concepts). Other topics identified for priority attention included cooperative research on the wolf (*Canis lupus*); coordination in gathering, storing and analysing data on bird migration; cooperative research on the black-footed ferret (*Mustela nigripes*) and Siberian polecat (*Mustela ermine*); study of raptors; research on northern waterfowl; classification of wetland habitats; cooperation in protecting endangered plant species and introducing exotic species; and further development and exchange of educational materials and public information.

In October-November 1974 a Soviet specialist, Dr. V. E. Yakobi, participated in cooperative field work in the USA for banding northern swans and other northern migratory waterfowl.

The project leaders were E. Baysinger, U.S. Fish and Wildlife Service, Department of the Interior (USA) and Dr. V. V. Krinitskiy, Main Administration for Protection of Nature, USSR Ministry of Agriculture (USSR).

Project V-2 Protection of Northern Ecosystems

In August 1974 a US delegation visited Moscow, Norilsk, Krasnoyarsk, Yakutsk, and Magadan and became acquainted with environmental problems associated with pipelines, permafrost disturbances, mining activities, forestry practices and fires, reindeer husbandry, and exploitation of wildlife resources. A second US delegation visited Norilsk and Yakutsk for familiarization with research and development of northern reindeer and management of wild reindeer resources.

-15-

Two Soviet delegations visited the USA in September 1974. The first visited the Kenai Peninsula, Homer, Anchorage, Fairbanks, Kotzebue, the Barrow Scientific Center, and McKinley Park for familiarization with US scientific organizations' work in protecting northern nature. The second visited Nunivak Island and several other sites for detailed study of muskox breeding in Alaska.

During these visits and related meetings, it was decided to organize cooperative work within two major topic areas:

(A) Structure, Function and Productivity of Northern Ecosystems, as Related to their Protection and Monitoring -- studies of applied research which seeks to obtain ecological knowledge needed for proper resource management.

(B) Methods of Prevention, Mitigation and Restoration of Adverse Disturbances in Northern Ecosystems -- studies concerning the environmental impact of resource development technology and the means for mitigating adverse effects.

Within these two areas ten topics for early implementation in 1975 and four proposals for later implementation were agreed upon.

The project leaders were Dr. R. Skoog, U.S. Fish and Wildlife Service, Department of the Interior (USA) and Dr. V. Denisov, Main Administration, USSR Ministry of Agriculture (USSR).

Project V-3 Organization of Preserves

In terms of organizational programs, scientific direction, and exchange of visits, the work undertaken in this area during 1974 was closely related to that undertaken in Project V-1.

The project leaders held extensive discussions in Paris in May, in the USSR during October, and in the USA during November 1974. These included the question of future cooperation in the field of biosphere reserves, joint publication of articles on preservation and conservation of nature, the preparation of a bilingual glossary, exchange of information and persons relating to citizen organizations, and expansion of educational and public information aspects.

The project leaders were Dr. T. Sudia, National Park Service, Department of the Interior (USA) and Dr. V. V. Krinitsky (USSR).

-16-

Project V-4 Utilization and Management of Economically Beneficial Species of Wild Animals

No concrete measures were developed under this project in 1974.

Project V-5 Marine Mammals

The second meeting of the Marine Mammals group was held in Washington, D. C., December 2-12, 1973. Information was exchanged on conservation and harvest regulations as well as on catch statistics for grey whales and other marine mammals. Proposals for conducting cooperative research were discussed.

In June 1974, two US specialists, Dr. F. Fay and J. Burns, visited Soviet museums and laboratories where seal and walrus studies are being conducted or specimen materials are housed. They examined a substantial amount of the available skeletal material at the University of Moscow Museum and also at the Museum of the Academy of Sciences in Leningrad. One of these specialists also visited Lake Baikal Limnological Institute of the USSR Academy of Sciences and received information on Baikal seals.

At the suggestion of the US side, the meeting of the Working Group scheduled for the fall of 1974 was postponed to the spring of 1975 to allow time for further development of long-range plans.

The project leaders were Dr. R. V. Miller, National Marine Fisheries Service, National Oceanic and Atmospheric Administration (USA) and Dr. V. A. Zemskiy, VNIRO (USSR).

Project V-6 Protection of Arid Ecosystems

In the absence of concrete proposals from scientific organizations and specialists on initiating work in this field, no discussions took place. However both sides remain interested in the possibility of cooperative research in this area.

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College of NATURAL RESOURCES, UTAH STATE
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USSR SIDE: RUSTANOV, ANVER, K. PROF. DIR. TURKMAN
INST. ASH KHA BND

The chairmen of Area V are E. U. Curtis Bohlen, Deputy Assistant Secretary, U.S. Department of the Interior (USA) and (with the exception of Project V-5) Dr. B. M. Bogdanov, Chief, Main Conservation Administration, USSR Ministry of Agriculture.

AREA VI -- PROTECTION OF THE MARINE ENVIRONMENT FROM POLLUTION

Project VI-1 Prevention of Environmental Pollution During Well Drilling, Production, and Pipeline Transportation of Oil and Gas

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USSR CO-CHMM: DUBCHAK, V. Kh.

-17-

A Soviet delegation of eight specialists visited the USA during the period May 19-June 2, 1974. Visiting Washington, D. C.; Houston, New Orleans, Los Angeles, Santa Barbara, and San Francisco, the delegation became acquainted with on-shore and off-shore petroleum facilities, research laboratories and manufacturing plants; held technical discussions and meetings with US counterparts; and received a variety of technical literature. During this trip, meetings were held in Washington, D. C., New Orleans, and San Francisco. It was agreed that a US delegation would visit the USSR in October 1974 for technical discussions; this was postponed at the request of the US side. It was also agreed that a Soviet delegation would visit the US in May 1975 to attend the Offshore Technology Conference in Houston and to hold technical discussions in New Orleans. It was further agreed that a US delegation would visit the USSR in August 1975 for either a visit to the pipeline in Siberia or a symposium on environmental protection during oil transportation by pipelines.

It was decided that further cooperation in this project would be carried out in the framework of the 1974 US-USSR Agreement on Cooperation in the Field of Energy.

The project leaders were Dr. W. A. Radlinski, Associate Director, U.S. Geological Survey (USA) and Dr. A. K. Karayev, Ministry of Oil Industry (USSR).

Project VI-2 Prevention and Clean-Up of Oil Pollution of the Marine Environment from Shipping

A meeting of US and Soviet specialists in the field of marine environmental protection was held in the USA September 1-11, 1974. The Soviet delegation toured a variety of pollution control facilities and joined with the US side in a series of conferences to continue development of the program of cooperation in the control of marine pollution from shipping. During the period of the visit the Soviet specialists became acquainted with the US Coast Guard Training Center, Yorktown, Virginia, including the Marine Environment Protection School; the US Environmental Protection Agency (EPA) oil and hazardous materials simulated environment test tank (OHMSETT), Leonardo, New Jersey; the Lockheed Corporation oil recovery device under test in the simulated environment test tank; the EPA Water Quality Laboratory, Edison, New Jersey, and the work program of the Laboratory; the Keene Marine Discharge Control System for the separation of oil and water, a monitor for measuring the oil content of the discharge and an automatic data recording device at the Keene Corporation facility, Cookeville, Tennessee; the Atlantic Strike Team (National Strike Force) responsible for liquidation of accidental marine spills at the Coast Guard

-18-

Air Base, Elizabeth City; the air deliverable anti-pollution transfer system (ADAPTS) as well as a variety of pollution containment devices located at the Elizabeth City Air Base. Technical papers were exchanged and discussions were held on topics including high seas oil recovery and containment devices, port reception facilities, technical operation of the Soviet merchant marine fleet, airborne remote sensing systems, the air deliverable anti-pollution transfer system, training and equipment for emergency response to oil spills, and chemical dispersing and collecting agents.

A meeting on Prevention and Clean-Up of Oil Pollution of the Marine Environment from Shipping was held in the USSR from 30 November - 15 December 1974. The US delegation, headed by Capt. S. A. Wallace (USCG), toured a variety of Ministry of the Merchant Marine facilities concerned with pollution control, and continued development of the cooperative program on control of marine pollution from shipping. During the period of the visit, the US delegation became acquainted with the oily waste reception and treatment facility at Batumi, the anti-pollution systems aboard various vessels of the Ministry of the Merchant Marine, oil-water reception and treatment facility at Novorossiysk, the Merchant Marine Control Research Institute at Leningrad, the ports of Sochi and Sukhumi, and met with officials from the Georgian, Black Sea, and Latvian Shipping Companies. Technical papers were exchanged and discussions held on such topics as oil content measurement, oil-water separators, oil recovery devices, fast current recovery concepts, an oil spill identification system, the USCG Chemical Hazard Response Information System (CHRIS), shipboard sewage treatment, oil containment devices and methods of evaluating the effectiveness of oil dispersants and collecting agents.

Both sides determined that, in view of the satisfactory evolution of project work and of the prospective coming into force of the 1973 International Convention for the Prevention of Pollution from Ships, the project should be broadened in the future to address the following matters:

(a) General technical requirements for ships pursuant to the 1973 Convention.

(b) Oil clean-up and emergency salvage equipment for installation on a special Soviet emergency-salvage vessel.

(c) Exchange of information on oil containment and recovery devices as specified in the Minutes of Agreement dated September 11, 1974, with ultimate exchange of devices for purposes of evaluation.

-19-

(d) Development of standard methods for prompt identification of the source of discharges. Recognizing the importance of item (d), the two sides began discussions on this item in December 1974 and agreed to include it in the program of future cooperation.

(e) Oil discharge monitoring and control systems, development of oil content measuring instruments, procedures for discharge of light refined oils, and standard analytical methods to determine instrument accuracy, all in the context of Annex I to the 1973 Convention.

(f) Adequacy and maintenance of reception facilities for residues, in the context of Annexes I, II, and IV of the 1973 Convention.

(g) Standards and test methods for sewage treatment plants on ships. Cooperation on items (a), (b), and (c) began in 1974.

The two sides drew the following conclusions:

(a) The title of the project should be amended to reflect the broadened character of the work to be undertaken; i.e., deletion of reference to oil, which would make the title read: "Prevention and Clean-up of Pollution of the Marine Environment from Shipping."

(b) Work should proceed with all possible speed on the development of standard test procedures for evaluation of effectiveness of chemical dispersants and surface collecting agents with the aim of completing this task in 1975.

(c) Items (b), (c), and (d) in the paragraph above offer the best prospects of significant progress in the near term. Therefore, they should be included in the contemplated work program for 1975.

(d) The results of all cooperation should be reported to the Intergovernmental Maritime Consultative Organization (IMCO) for further distribution, particularly in view of the broadened nature of the work to encompass the provisions of the 1973 International Convention on Prevention of Pollution from Ships.

(e) Item (a) in the paragraph above should be considered by both sides, separately and jointly, to identify those tasks related to the 1973 Convention which can profitably be undertaken jointly. In such consideration, due regard should be given the work program of the IMCO Marine Environment Protection Committee.

Project VI-3 Effects of Pollutants on Marine Organisms

The major goal for the year was the initiation of an exchange of distinguished lecturers. This exchange was very successful. Soviet and US leaders in specific areas of marine research were able to give lectures, hold discussions, and make institutional visits with their counterparts. Three delegations of US lecturers visited the USSR in June (Moscow, Leningrad, Sevastopol, and the Kandalaksha Gulf of the White Sea), in September (Moscow, Sevastopol, Leningrad, and Obninsk), and in October (Moscow, the Institute of Biochemistry and Physiology of Microorganisms at Puschino, the Zoological Institute at Leningrad, and the Institute of Biology of Inland Waters at Borok City). Two groups of Soviet specialists visited the US, one in May (Washington, Narragansett, Woods Hole, and Scripps Institute in La Jolla) and the other in August (Washington, Narragansett, Woods Hole, National Marine Fisheries at Beaufort, N. C., and La Jolla). The US side provided their Soviet colleagues with pesticide samples and PCB-extracting resins to use in simultaneous laboratory studies.

Prof. A. I. Simonov met with Dr. Schneider in Narragansett, Rhode Island in July to discuss the project's programs and problems. Prof. Simonov also visited Woods Hole and the Scripps Institute of Oceanography. Some progress was made on preparing joint publication of scientific articles. Joint publication will provide an effective means of communication between the researchers of the two countries, and will be available to others as well as a contribution to the world-wide fight against marine pollution.

The project leaders were Dr. E. Schneider, Director, National Marine Water Quality Laboratory, EPA (USA) and Prof. A. I. Simonov, Chief, Department of Scientific Basis for Protection and Utilization of Marine Environment, State Oceanographic Institute, Hydrometeorological Service (USSR).

AREA VII -- BIOLOGICAL AND GENETIC EFFECTS OF ENVIRONMENTAL POLLUTION

Project VII-1 Biological and Genetic Effects of Pollutants

Work began under each of the three fields:

Mutagenesis: In February 1974 a delegation of eleven scientists headed by Dr. F. J. de Serres, Chief, Environmental Mutagenesis Branch, National Institute of Environmental Health Sciences, participated in a symposium

-21-

in Moscow on The Mutagenic Effects of Environmental Pollutants on Man, following which the US delegation visited various institutes in both Moscow and Kiev. The proceedings of this symposium are being published in both Soviet and US journals.

Extensive information exchange activities occurred during the past year. The US side sent the Soviet side proceedings and reports of meetings held in the USA and abroad. In addition, a wide range of reports were sent to Soviet scientists by the Environmental Mutagen Information Center (EMIC). Papers from various Soviet journals were also sent by Soviet scientists to EMIC.

Following the February 1974 symposium in Moscow a ten-point resolution to define additional areas of cooperation was signed by both sides. A supplemental protocol on cooperation in the field of mutagenesis was signed in June 1974.

Cooperative work in this field was conducted under the direction of Dr. F. J. de Serres (USA) and Academician N. P. Dubinin, Director, Institute of General Genetics, USSR Academy of Sciences (USSR).

Epidemiology: During the above mentioned June meeting in Moscow it was agreed that the US side would summarize its experiences with epidemiological studies of the health effects of sulfur oxides in the atmosphere and discuss these studies and results at a small working meeting to be held in Moscow in December 1974. This meeting was postponed at the request of the Soviet side.

Cooperative work in this field was conducted under the direction of Dr. J. H. Knelson, Director, Human Studies Laboratory, EPA (USA) and Dr. E. I. Korenevskaya, A. N. Sysin Institute of General and Communal Hygiene (USSR).

Heavy Metals: The US side provided the Soviet side with additional information on current developments in heavy metals during 1974. In June it was agreed to develop a joint research plan to study the health effects of cadmium and zinc. Both sides subsequently exchanged proposed research plans.

Cooperative work in this field was conducted under the direction of Prof. R. R. Suskind, Director, Department of Environmental Health, Kettering Laboratory, University of Cincinnati (USA) and Academician N. P. Dubinin as well as Prof. Sidorenko, Director, A. N. Sysin Institute of

General and Communal Hygiene (USSR).

During June 1974 a US delegation led by Prof. D. P. Rall, Director, National Institute of Environmental Health Sciences, Department of Health, Education and Welfare, visited the USSR to review ongoing work and to visit research institutes.

The project leaders were Prof. D. P. Rall and Dr. J. H. Knelson (USA) and Academician N. P. Dubinin, Director, Institute of General Genetics, USSR Academy of Sciences (USSR).

Project VII-2 Comprehensive Analysis of the Environment

The first joint Soviet-American Symposium on Comprehensive Analysis of the Environment was held March 25-April 1, 1974 in Tbilisi, Georgia, USSR. Papers were presented on maximum permissible environmental loadings, stresses on organisms and ecosystems and their response, methods of determining acceptable levels of control, and cost-effective methods of control. It was agreed that the symposium papers would be published by each side.

During the symposium the following main items were identified as requiring investigation in the near future:

- (1) More complete accounting of pollution sources and receptors, types of impacts and biological reactions, as well as peculiarities of the area or region where such impact occurs;
- (2) Investigation of dose/response relationships in toxicological, genetic, and other experiments;
- (3) Scientific substantiation of environmental monitoring techniques with due consideration of critical links in analyzed systems;
- (4) Studies of the fate and effects of multimedia pollutants, supplemented by development of the required standards;
- (5) Assessment of the needs for separate standards limiting long- and short-term dosages of selected environmental pollutants;
- (6) Methods for evaluating the response of ecosystems to varying environmental conditions;
- (7) Development of criteria for scientifically permissible environmental loading and identification of critical links;

-23-

(8) Development of practical quantitative methods which will permit comprehensive environmental analysis to be applied effectively to environmental problems;

(9) Development of methodology for assessment of possible economic damage resulting from man's impact on the environment; and

(10) Feasibility of a joint US-USSR monitoring system.

The project leaders were Dr. R. Cortesi, Director, Washington Environmental Research Center, EPA, who succeeded Dr. L. Attaway (USA) and Academician Yu. A. Izrael, Chief of Main Administration, Hydro-meteorological Service (USSR).

AREA VIII -- INFLUENCES OF ENVIRONMENTAL CHANGES ON CLIMATE

The first session of the Working Group was held June 10-21, 1974 in Leningrad. It was agreed to initiate exchanges of scientists and information and to conduct cooperative experiments beginning in 1975 under three projects whose reorganization the Joint Committee subsequently approved:

Project VIII-1 Effects of Changes in the Heat Balance of the Atmosphere on Climate

The Working Group recommended that within the framework of this project cooperation develop along the following scientific lines:

- Modeling of climate
- Assessment of past changes of the climate on the basis of analysis of natural objects and data
- Interactions of the atmosphere with the water and ice of the polar regions as they affect climate

In May-June, 1974, Dr. S. M. Olenicoff, a US specialist on polar research bibliography, visited the USSR and familiarized himself with bibliography, scientific publications, and work in Soviet scientific institutions related to research on the influence of polar regions on climate.

The project leaders were Dr. J. Smagorinsky, Director, Geophysical Fluid Dynamic Laboratory, National Oceanic and Atmospheric Administration (USA) and M. I. Budyko, Correspondent-Member of the USSR Academy of Sciences (USSR).

-24-

Project VIII-2 Effects of Pollution of the Atmosphere on Climate

In February 1974 a delegation of Soviet specialists participated in the Fourth Annual American Conference on Results of Evaluation of the Influence of Pollution in the High Level Atmosphere on Climate. In the framework of this project scientific objectives of joint work are being developed to determine the concentration of minor impurities in the atmosphere which influence the climate.

The project leaders were Dr. L. Machta, Air Resources Laboratory, NOAA (USA) and Dr. I. L. Karol', Voeikov Main Geophysical Observatory, Leningrad (USSR).

Project VIII-3 Influence of Solar Activity on Climate

In 1974 no specific measures were taken in the framework of this project apart from scientific discussions and visits during the meeting of the Working Group.

The project leaders were Prof. J. M. Wilcox, Institute for Plasma Research, Stanford University (USA) and Academician Mustel, Hydrometeorological Center, Moscow (USSR).

In connection with these three projects, US participants at the June Working Group meeting visited institutions in Leningrad including A. A. Zhdanov State University, the Arctic and Antarctic Research Institute, the Pulkovo Astronomical Observatory, and the Voeikov Main Geophysical Observatory, as well as organizations of the Academy of Sciences of the USSR including the Branch of Oceanology Institute, the Komarov Botanical Institute, the All-Union Geological Institute, and the Institute of Zoology. In Moscow, visits were made to the Hydrometeorological Center, the Geological Institute, as well as the Oceanology Institute, the Institute of Atmospheric Physics, the Computing Center, and the Geography Institute, all of the Academy of Sciences of the USSR. The delegation also met with a representative of the Ministry of Aviation Industry. Subgroups of the American delegation also visited Soviet institutions and observatories in Novosibirsk, the Crimea, Kiev, and the Northern Caucasus.

In all three projects scientists from both sides exchanged reprints of recently published articles relating to the influence of environmental changes on climate.

The Working Group Co-Chairmen were Dr. E. S. Epstein, Associate Administrator for Environmental Monitoring and Prediction, NOAA, who

-25-

succeeded Dr. W. N. Hess (USA) and Dr. E. P. Borisenko, Director, Voeikov Main Geophysical Observatory, Leningrad (USSR).

AREA IX -- EARTHQUAKE PREDICTION

1. Earthquake Hazard Reduction Program

Cooperative work in this field was carried out under four projects:

Project IX-1 Field Research on Earthquake Prediction

A network of eight seismic stations in the seismic area of Garm, Tadjikistan, was established with the cooperation of Dr. R. L. Wesson and R. M. Kaderabek of the U.S. Geological Survey during June-December 1974, and has already made a great number of observations. Dr. P. Molnar, Massachusetts Institute of Technology (MIT), worked jointly with Drs. V. I. Khalturin and T. G. Rautian, Institute of Physics of the Earth during June and July 1974 at Garm, to analyze spectral characteristics of earthquakes in Central Asia and new prognostic criteria were obtained, using spectral characteristics of nearby earthquakes. Two scientific reports describing the joint activity of Drs. Molnar and Wesson with Soviet colleagues were prepared. The first US-USSR joint paper written by Drs. P. Molnar and J. A. Ruzaikin on characteristic features of Central Asian geology based on seismographic data has been sent for publication.

Dr. I. L. Nersesov and A. V. Nikolaev visited the USA, August - November 1974. Joint research was begun by Dr. Nikolayev of the Institute of Physics of the Earth, USSR, and Dr. Aki of MIT on the inhomogeneity of the earth as related to seismicity.

The project leaders were Dr. J. P. Eaton, Chief of Seismology Branch, U. S. Geological Survey (USA) and Dr. I. L. Nersesov, Deputy Director, Institute of Physics of the Earth, USSR Academy of Sciences (USSR).

Project IX-2 Laboratory and Theoretical Study of the Physics of the Earthquake Source

Drs. W. F. Brace, MIT, and J. H. Dieterich, U. S. Geological Survey, worked with Soviet colleagues at the Institute of Physics of the Earth in Moscow during May-June 1974.

After attending the Penrose Conference of the Geological Society of America on fracture mechanics and earthquake source mechanisms, Drs. V. I. Myachkin and G. A. 2001/09/03 : CIA-RDP79-00798A000700090001-1
various US institutions. A joint paper "Physical Basis for Earthquake

-26-

Prediction" has been sent for publication. In this paper an American model and a Soviet model are compared. Joint laboratory investigations of earthquake precursors as determined by (V_p/V_s) at shearing stresses were conducted.

The project leaders were Dr. W. F. Brace (USA) and Dr. V. I. Myatchkin, Deputy Chief, Seismology Section, Institute of Physics of the Earth (USSR).

Project IX-3 Mathematical and Computational Prediction of Locations of Strong Earthquakes, Seismicity and Estimation of Seismic Risk

In January 1974 Drs. R. V. Whitman and A. Cornell, MIT, worked with Soviet colleagues at several institutions in Moscow.

The US side provided scientific and technical information including material on mathematical provisions of geophysical work, geological and geophysical maps, surveys from artificial earth satellites and probability data on seismological risk. These materials can be used for preparing seismic zoning maps and for estimation of seismic risk. A joint scientific paper has been prepared.

The project leaders were Prof. L. Knopoff, UCLA (USA) and Prof. V. I. Keilis-Borok, Institute of Physics of the Earth, USSR Academy of Sciences (USSR).

Project IX-4 Engineering Seismological Studies

In September-November 1974 Soviet scientists S. Kh. Negmatullaev and Dr. Aptikaev carried out two months of work with their US colleagues. US specialists made several short familiarization visits to the Institute of Seismically Stable Construction and Seismology of the Academy of Sciences, Tadjik SSR. A plan for work in the Tadjik SSR in 1975 was prepared.

The project leaders were Dr. R. B. Matthiesen, Chief, Seismic Engineering Branch, U. S. Geological Survey (USA) and S. Kh. Negmatullaev, Director, Institute of Seismically Stable Construction and Seismology (USSR).

The Working Group Co-Chairmen were Dr. R. E. Wallace, Chief, Scientist, Office of Earthquake Studies, U. S. Geological Survey (USA) and Academician Mikhail A. Sadovskiy, Director, Institute of Physics of the Earth, USSR Academy of Sciences (USSR).

-27-

2. Tsunami Warning System

Project IX-5 Tsunami Warning System Coordination

The first meeting of specialists to discuss the possible creation of a joint US-USSR Tsunami Warning System took place in Washington, D. C. in December 1974. A program for cooperative work in 1975 was developed.

The project leaders were Dr. J. Thompson, NOAA (USA) and S. L. Solovyev, Correspondent-Member of the USSR Academy of Sciences (USSR).

AREA X -- ARCTIC AND SUBARCTIC ECOLOGICAL SYSTEMS

Work related to arctic and subarctic regions continued through projects under other areas of the 1973 Memorandum of Implementation. (See Areas II, IV, V, and VII.)

AREA XI -- LEGAL AND ADMINISTRATIVE MEASURES FOR PROTECTING ENVIRONMENTAL QUALITY

Project XI-1 Legal and Administrative Measures

In May 1974 the second meeting of US and Soviet specialists on legal and administrative measures was held in Moscow. Special attention was given to various aspects of the relationship between national and international environmental law.

Both sides agreed to continue the exchange of information and literature in the legal and administrative fields; to exchange scholars for study of legal and administrative aspects of environmental protection; to examine the possibility of publishing in English and Russian the papers presented at the meeting and other papers on environmental subjects; to assist in the publication of articles on the legal aspects of environmental protection by US and Soviet authors in Soviet and US legal journals; to consult on problems of international law in the field of environmental protection; and to continue facilitating direct contacts between nongovernmental mass membership organizations.

The US delegation also met with government officials and representatives of nongovernmental organizations of the USSR, the Russian Soviet Federative Socialist Republic, the Ukrainian SSR, the Azerbaijan SSR, and the Uzbek SSR. Visits were also made to a number of other locations including Kiev, Baku, Tashkent, Samarkand, Vladimir, Suzdal, and the Kanev State Reservation of the Ukrainian SSR.

-28-

The project leaders were J. Busterud, Member of the Council on Environmental Quality (USA) and Dr. O. S. Kolbasov, Institute of State and Law (USSR).

Project XI-2 Harmonization of Air and Water Pollution Standards

The objective of this project is mutually beneficial cooperation in solving problems in the development and implementation of standards for control of air and water pollution in both countries. Implicit in this is the desirability of harmonizing the standards of the two countries to the extent possible.

The first meeting of specialists was held in Washington, D. C., July 29-August 11, 1974. Agreement was reached on a list of topics for possible future cooperation, including the exchange of scientific and technical papers and other information; exchange of visits by specialists; joint symposia, joint research on topics developed in the course of co-operation; joint testing of equipment, instruments, and materials at sites in each country; joint development of harmonized pollution control standards; and the development of compatible economic analysis methods for use in attainment and justification of environmental protection standards.

The Soviet delegation visited the U.S. National Bureau of Standards in Rockville, Maryland, and other US facilities concerned with the standards compliances in Denver and Boulder, Colorado, as well as the manufacture of equipment for such compliance in San Francisco, Palo Alto, Sacramento, and Fullerton, California.

The second meeting of specialists took place in the USSR in December 1974 and adopted a joint work program. Meetings and site visits took place in Moscow, Tallin, and Leningrad.

The project leaders were Dr. S. R. Galler, Deputy Assistant Secretary for Environmental Affairs, Department of Commerce (USA) and B. V. Krutov, Deputy Director, Technical Department, State Committee on Standards (USSR).

COORDINATION AND COMMUNICATION

Secretariats and staffs have been established by the Co-Chairmen of the Joint Committee to coordinate the work of all organizations participating in the program. In addition to coordinating and monitoring the activities of cooperating organizations, they maintain contacts with the press of both countries on general questions of environmental cooperation. They also assist in arranging related visits of individuals and groups representing

-29-

governmental, public, and private organizations which do not have a direct part in the program and which have not been planned by the Joint Committee.

Frequent contacts were maintained during the past year between the US Chairman and Coordinator Russell E. Train and the Soviet Chairman Academician E. K. Fedorov and his Coordinator Academician Yu. A. Izrael, who became the Soviet Chairman and Coordinator during the second quarter.

A mid-year review of program implementation was held in Moscow in May. In October Academician Izrael visited the USA to discuss with Mr. Train the results of the work carried out during the past year, to resolve organizational matters, and to prepare plans for the third annual meeting of the Joint Committee.

Strengthening mutual overall cooperation and contacts among specialists in various fields under the program, these meetings further contributed to the practical implementation of projects and to the resolution of questions which arose. Both sides agreed to continue holding ad hoc meetings between the Chairmen or their representatives.

CONCLUSIONS

Both sides view the results of the first two years of cooperation positively. A wide range of contacts between agencies and organizations of both countries has developed. Reciprocal familiarization with work programs and problems of both countries in designated areas of environmental cooperation has deepened. Notwithstanding certain delays and postponements occasioned by organizational difficulties, a large volume of technical information has been exchanged and in some areas joint scientific and technical work has started. The results have been mutually beneficial and may prove useful for more successful resolution of environmental protection problems in other countries.

At the same time, both sides recognize the need to expand and deepen specific forms of cooperation. Attainment of solutions to common environmental problems should be further enhanced by jointly developing, exchanging, testing, and improving technological processes and equipment; by increasing long-term working exchanges of scientists and specialists; and by holding symposia and exhibitions on specific subjects.

Both sides reaffirm the view that the existing framework of the Environmental Agreement serves as a sound basis for expanded cooperation and believe that in 1975 cooperation should further develop mainly through intensifying work which has been initiated by existing working groups and projects.

-2-

The Co-Chairmen of the Joint Committee discussed the question of the organization of cooperation in the field of biosphere reserves, provided for in the US-USSR Communiqué of July 3, 1974. It was agreed that the realization of this cooperation will begin in 1975 and its program will be approved during the Third Session of the Joint Committee.

Both sides discussed in a preliminary manner the program of US-USSR cooperation in the field of environmental protection in 1975. Considering the broad extent of cooperation achieved thus far, which reflects all basic questions of environmental protection, both sides expressed their mutual desire to devote their basic attention in 1975 to the realization of cooperation along previously agreed lines.

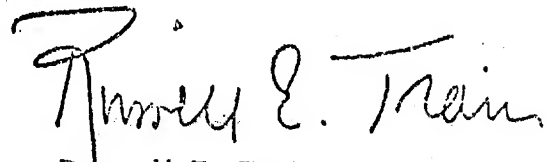
It was noted by Professor Yu. A. Izrael during the meeting that the visits made by him and by members of his delegation to the National Research Center of the U. S. Environmental Protection Agency at Corvallis, Oregon, to the Andrew's Experimental Forest, and to the EPA National Field Investigation Center and Regional Headquarters at Denver, Colorado, were highly useful from the viewpoint of a better understanding of the scientific and administrative role of EPA in environmental protection questions in the USA.

The meeting of the Co-Chairmen and the detailed consultations on questions of US-USSR cooperation, which took place in connection with

-3-

At this meeting, were held in a businesslike, congenial atmosphere and facilitated the strengthening of US-USSR relations.

Yu. A. Izrael
Chief of the Main Administration
of the Hydrometeorological Service
The Council of Ministers of the USSR


Russell E. Train
Administrator
Environmental Protection Agency
USA

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JOINT ANNOUNCEMENT

The third meeting of the US-USSR Joint Committee on Cooperation in the Field of Environmental Protection was held in Moscow from December 9 to 12, 1974.

The Joint Committee met in an atmosphere of friendship and understanding of the importance of cooperation in solving scientific and technical problems of environmental protection and in improving relations between the two countries.

In the US-USSR Agreement on Cooperation in the Field of Environmental Protection signed in Moscow May 23, 1972 it is stated that "The Parties will develop cooperation in the field of environmental protection on the basis of equality, reciprocity, and mutual benefit" and that "This cooperation will be aimed at solving the most important aspects of the problems of the environment and will be devoted to working out measures to prevent pollution, to study pollution and its effect on the environment, and to develop the basis for controlling the impact of human activities on nature."

The two sides agreed that the work carried out in 1974 under the Memorandum of Implementation signed in Washington, D. C. on November 16, 1973, during the second meeting of the Joint Committee has been very successful and beneficial for both countries. They noted that during the period December 1973 to December 1974 more than 60 joint activities including meetings of working groups, project leaders, and specialists had taken place and that considerable activity had taken place under each of the eleven major areas of the Agreement. A comprehensive Report of the past year's activities was adopted. Taking into account the recommendations of working groups and project leaders, the Joint Committee reviewed plans for each of the specific projects for the forthcoming year and adopted a new Memorandum of Implementation setting forth comprehensive plans for 1975.

The two sides held a comprehensive discussion of general problems of environmental protection of mutual interest to their countries and to other countries interested in preserving a healthful global environment. They reaffirmed the statement made in the Joint Announcement of the Joint Committee in September 1972 that "the peoples and Governments of both countries consider it highly important to ensure wise use of natural resources and protection of nature under the conditions of economic and technical progress. In this endeavor they will cooperate with each other and with other interested countries so that the fruits of research can be shared and the common cause advanced of protecting the environment. Both sides expressed the hope that the mutual efforts

agreed upon at this meeting will be of benefit to other countries as well."

Pursuant to the agreement set forth in the US-USSR Communique of July 3, 1974 "to designate in the territories of their respective countries certain natural areas as biosphere reserves for protecting valuable plant and animal genetic strains and ecosystems concerned with global environmental protection," the Joint Committee approved a new project for cooperation on biosphere reserves for implementation in 1975. This project will contribute to the implementation of the "Man and the Biosphere" International Program conducted under the auspices of the United Nations Educational Scientific and Cultural Organization (UNESCO).

The Joint Committee recognized the advisability of negotiations for preparing a Convention for the Protection of Migratory Birds and their Habitats, as well as other Wild Fauna and Flora.

Both sides noted with satisfaction the useful exchange of opinions that took place in the first round of the US-USSR talks on exploring possible measures for overcoming the dangers of the use of environmental modification techniques for military purposes.

During the course of the Joint Committee meeting both Chairmen were received by President N. V. Podgorny.

It was agreed that the next meeting of the Joint Committee would be held in Washington, D. C. in the second half of 1975. In the meantime, the Chairmen on both sides will be in continuing communication to ensure the successful fulfillment of the program set forth in this Memorandum.

Lists of the membership of the two delegations are attached.

Moscow
December 12, 1974

DELEGATION LIST
US SIDE

Third Annual Meeting of the US-USSR
Joint Committee on Cooperation in the Field
of Environmental Protection

Honorable Russell E. Train, Chairman, US Side
Administrator
Environmental Protection Agency

Dr. B. J. Steigerwald
Director
Office of Air Quality Planning and Standards
Environmental Protection Agency

Dr. John L. Buckley
Deputy Assistant Administrator
Office of Research and Development
Environmental Protection Agency

Dr. Clare Harris
Deputy Administrator
Cooperative State Research Service
U. S. Department of Agriculture

Mr. Richard H. Broun
Acting Director
Office of Environmental Quality
Department of Housing and Urban Development

Mr. E. U. Curtis Bohlen
Deputy Assistant Secretary for Fish
and Wildlife and Parks
Department of the Interior

Captain S. A. Wallace
Chief, Marine Environmental Protection Division
U. S. Coast Guard

Dr. John H. Knelson
Director
Human Studies Laboratory
Environmental Protection Agency

Dr. Donald P. Martineau
Deputy Associate Administrator
for Marine Resources
National Oceanic and Atmospheric Administration

Dr. Robert Wallace
Chief
National Center for Earthquake Research
U. S. Geological Survey

Mrs. Ruth Clusen
President
League of Women Voters of the United States

Dr. William A. Brown
Executive Secretary, US Side
US-USSR Environmental Agreement

Mr. David H. Strother
Office of International Activities
Environmental Protection Agency

Mr. John K. Ward
American Embassy, Moscow

DELEGATION LIST
USSR SIDE

Academician Yu. A. Izrael, Chairman, USSR Side
Chief
Main Administration of Hydrometeorological Service

B. G. Shtepa
Deputy Minister
USSR Ministry of Land Reclamation and Water Management

Academician N. P. Dubinin
Director
Institute of General Genetics
USSR Academy of Sciences

Academician M. A. Sadovski
Director
Institute of Earth Physics
USSR Academy of Sciences

N. P. Bogdanov
Chief
Main Administration of Protection of Nature
USSR Ministry of Agriculture

A. O. Kudryavtsev
Chief
Administration of Town Building and Architecture
State Committee for Civil Construction and Architecture

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